

# Sowela Technical Community College

## Master Course Outline

**Course Name:** Physical Science 2

**Course Number:** PHSC 1200

**Lecture contact hours:** 45

**Lab contact hours:** 0

**Semester Contact Hours:** 45

**Semester Credit Hours:** 3

### Catalog Description:

Introductory study of topics in physical science including chemical processes, organic chemistry, meteorology, and geology.

**Prerequisites:** MATH 1100 (College Algebra) is recommended

**Co-requisites:** None

### Required Textbook and Supplies:

*An Introduction to Physical Science*, 11<sup>th</sup> edition, by Shipman, Wilson, and Todd, Brooks-Cole, 2006.

All students must have a scientific calculator.

### Student Learning Outcomes:

Upon successful completion of this course, the student will be able to

- Use a basic scientific vocabulary that relates to the course content.
- Recognize and explain physical phenomena relevant to course content.
- Demonstrate a fundamental knowledge of basic laws and principles of chemical bonding and reactions, meteorology, and geology.
- Use mathematics to solve problems illustrating appropriate principles of physical science.
- Relate physical science principles to everyday life.

### Assessment Measures:

Four instructor-designed unit exams	100 pts. each (drop lowest score)
In-class activities and homework assignments	100 points
Departmentalized, comprehensive final exam	100 points
Research paper	100 points
Quizzes	<u>100 points</u>
Total	700 points

## **Expanded Course Outline:**

### **Chemical Elements**

- Classification of matter
- Discovery of elements
- Occurrence of elements
- Periodic table
- Naming compounds
- Groups of elements

### **Chemical Bonding**

- Conservation of mass
- Definite proportions
- Dalton's atomic theory
- Ionic bonding
- Covalent bonding
- Hydrogen bonding

### **Chemical Reactions**

- Balancing chemical reactions
- Energy and rate of reactions
- Acids and bases
- Single-replacement reactions
- Avogadro's number

### **Organic Chemistry**

- Bonding in organic compounds
- Aromatic hydrocarbons
- Aliphatic hydrocarbons
- Derivatives of hydrocarbons
- Synthetic polymers

### **The Atmosphere**

- Composition and structure
- Atmospheric energy content
- Atmospheric measurements and observations
- Air motion
- Clouds

### **Atmospheric Effects**

- Condensation and precipitation
- Air masses
- Storms
- Atmospheric pollution
- Pollution and climate

### **Minerals, Rocks, and Igneous Activity**

- Minerals
- Rocks
- Igneous rocks
- Igneous activity
- Sedimentary rocks
- Metamorphic rocks

### **Structural Geology**

- Continental draft and seafloor spreading
- Plate tectonics
- Earthquakes and earth's interior
- Crustal deformation and mountain building

### **Surface Processes**

- Weathering
- Erosion
- Groundwater
- Shoreline and seafloor topography

### **Geologic Time**

- Fossils
- Relative geologic dating
- Radiometric dating
- The age of the earth
- Geologic time scale